



**RESTORATION SPECIFICATIONS FOR EXCAVATION
IN THE RIGHT-OF-WAY PERMITS
CITY OF FOND DU LAC ENGINEERING DIVISION
920-322-3470 | <https://www.fdl.wi.gov/engineering/>**

NOTE: Erosion and sediment control measures shall be in place prior to disturbance, and shall be removed when paved areas are restored and vegetative cover has been well-established over at least 80% of the disturbed area. Failure to place and maintain erosion and sediment control measures may result in the permit being rescinded.

A COPY OF THE EXCAVATION IN THE RIGHT OF WAY PERMIT SHALL BE ON THE JOB SITE AT ALL TIMES THAT CONSTRUCTION IS UNDERWAY.

Street

- ✚ Contact City Engineering at (920) 322-3470 at least two working days prior to excavation to determine the limits of pavement removal/restoration.
- ✚ Notify County Dispatch at (920) 906-5555 before closing any road or lane.
- ✚ Proper traffic control, barricading and flagmen shall be in use at all times in accordance with the Manual on Uniform Traffic Control Devices.
- ✚ Pavement restoration shall be in accordance with the City's "Specifications for Pavement Patching," latest edition.
- ✚ Contact City Engineering for patch inspection prior to replacing pavement. A minimum of 4-hours' notice is required.
- ✚ Utility trenches to be backfilled with slurry to the top of the subgrade elevation.
- ✚ Utility construction shall maintain at least six foot of horizontal clearance from all City utilities.
- ✚ Notify all neighboring properties of access limitations and construction inconvenience.

Terrace

- ✚ Restore disturbed areas with topsoil, seed, fertilizer, and mulch or erosion matting.
- ✚ Topsoil shall be shredded, placed a minimum of 4 inch thick and conforming to the slopes and elevations existing before disturbance of the terrace.
- ✚ Contractor shall water the restoration area one time after seeding.

Sidewalks

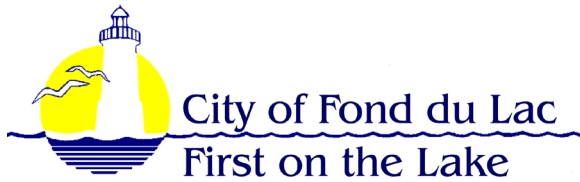
- ✚ Sidewalk and curb ramps removed during construction shall be sawcut and carefully removed to ensure integrity of surrounding concrete.
- ✚ Sidewalk and curb ramps disturbed by construction shall be temporarily restored at the end of the construction day to prevent hazards to pedestrians.
- ✚ "Sidewalk Closed" signs shall be used during construction until the location has been secured, restored, or replaced.
- ✚ A sidewalk permit shall be obtained from City Engineering prior to restoration of disturbed walks. All standards of the sidewalk permit and appurtenant details shall be followed.
- ✚ Curb ramps disturbed by construction shall be replaced in accordance with current standards, including placing unpainted metal detectable warning fields as manufactured by Neenah Foundry near the base of the ramp.
- ✚ Contact City Engineering for walk/ramp prior to placing concrete. A minimum of 4-hours' notice is required.

Roadside Ditches

- ✚ Restore disturbed areas with topsoil, seed, fertilizer, and erosion matting for the entire area of ditch disturbed by construction.
- ✚ Topsoil shall be shredded, placed a minimum of 4 inch thick and conforming to the slopes and elevations existing before disturbance of the ditch.

Sanitary and Storm Sewers

- ✚ Sanitary and storm sewer installation shall be in accordance with the *Detailed Specifications for Sewer Construction*.



1) General

- A. The City shall approve the selection of the contractor to place the various types of patches listed below.
- B. The City Engineering Division shall be notified and an inspection made prior to and during patching.
- C. All pavement opening edges shall be sawed prior to replacement.
- D. All pavement openings for utility trenches shall be replaced a minimum of one (1) foot wider than the trench opening on all sides to the same thickness as the original pavement.
- E. Trench shall be backfilled with slurry to sub-grade elevation.
- F. Temporary pavement patching shall be constructed with a slurry mix containing two (2) bags of cement per cubic yard, and shall be finished in a manner that provides a smooth ride and joint with adjacent pavement. Permanent pavement shall be placed as soon as possible.

2) Concrete Pavements

- A. The pavement patch shall be for the entire lane width and a minimum of ten (10) feet in length of such lane.
- B. Dowel and ties bars shall be placed into adjacent undisturbed pavement and/or gutter and extending into the patch area per City Engineering Division detail drawings.
- C. No pavement areas less than four (4) feet wide shall be left next to the gutter flange or construction joints.
- D. The replacement concrete shall be either regular strength or high-early strength as determined by the City Engineering Division to the same thickness and type as originally specified.
- E. The sides of existing concrete and sub-grade shall be wetted down before the new concrete is placed.
- F. When the new concrete is poured, it shall be vibrated to eliminate voids in the patch.
- G. The concrete patches shall be barricaded and allowed to cure for a minimum of four (4) to seven (7) days before opening to traffic or as determined by the City Engineering Division.
- H. The concrete patches shall be cured by applying linseed oil or approved curing compound ("impervious coating method") as specified by the Wisconsin Department of Transportation. Any concrete poured after October 1st shall be treated with linseed oil or approved curing compound and cold weather protection used. The specifications for this method are on file with the City Engineering Division.

3) Bituminous Pavements

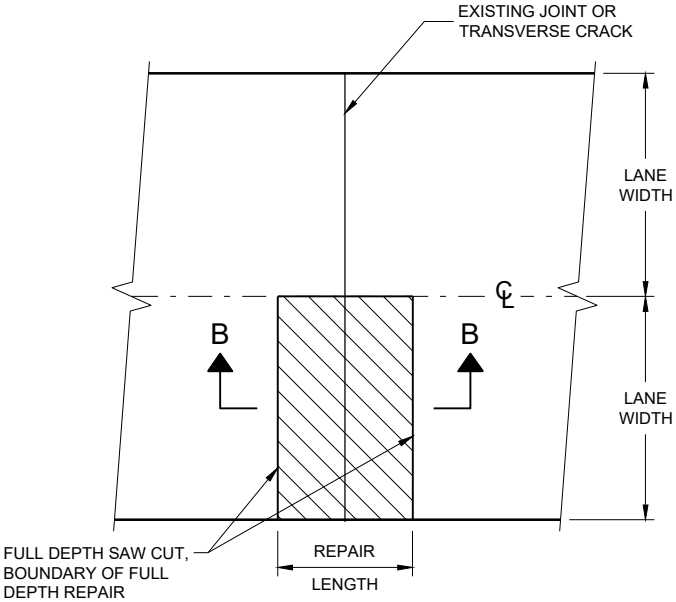
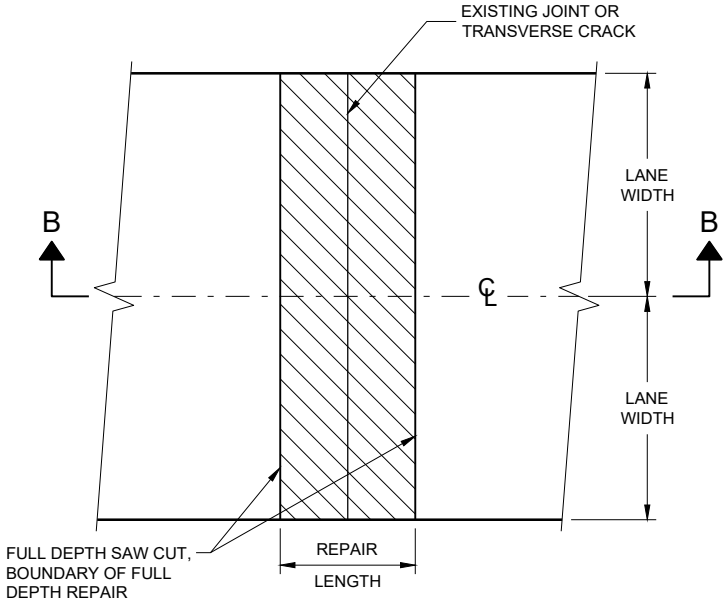
- A. The final surface patch shall be for the entire lane width and a minimum of ten (10) feet in length or as directed by the City Engineering Division.
- B. In multiple layer pavements, the pavement opening or hold shall be placed a minimum of one (1) foot wider than the trench opening on all sides with the bottom layer and each succeeding layer a minimum of one (1) foot wider and the final surface course being a minimum of ten (10) feet in length and the entire lane width.

4) Bituminous Recapped Pavements

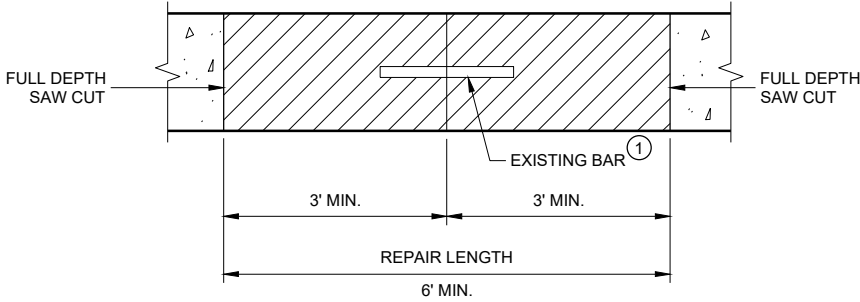
- A. The patch shall be of the same material and thickness as the original pavement and it shall be a minimum of ten (10) feet in length and the entire lane width or as directed by the City Engineering Division.
- B. No base pavement area less than four (4) feet wide shall be left next to the gutter flange.
- C. The bituminous patch shall be replaced with the same material in accordance with the original recapping specifications.

5) Pavement Cores

- A. Street pavement cores shall be limited and reviewed by the City Engineering Division to determine if the core can be reset in the existing pavement or if the pavement shall be replaced. If the core will be replaced, the method of resetting shall be submitted for review and approval by the City Engineer.



FULL DEPTH CONCRETE PAVEMENT REMOVAL



CONCRETE REMOVAL

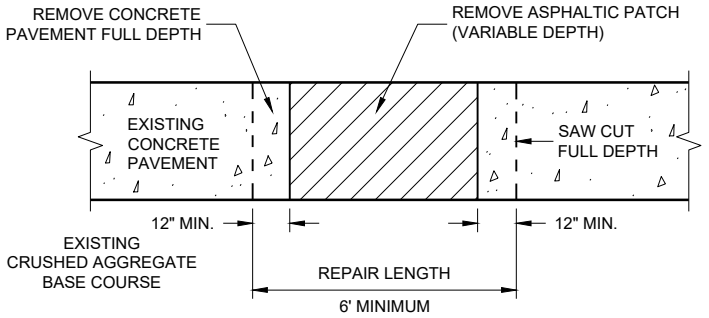
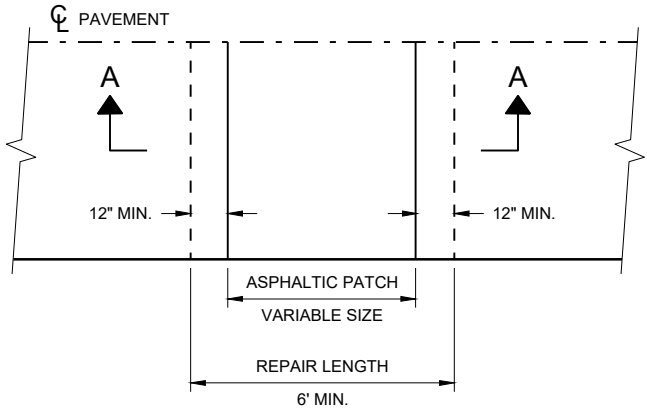
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

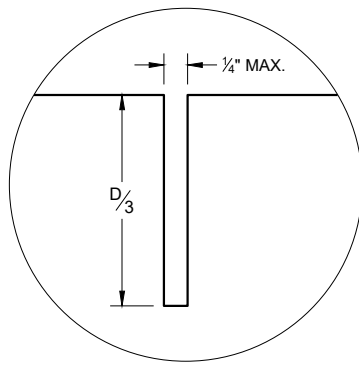
① DOWEL BARS MAY NOT BE PRESENT.



HMA PATCH REMOVAL

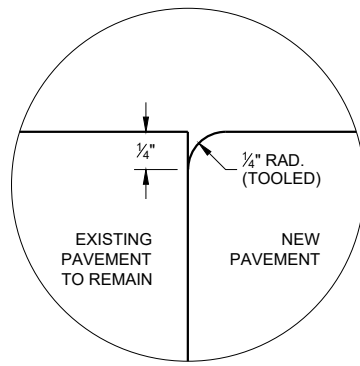
CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

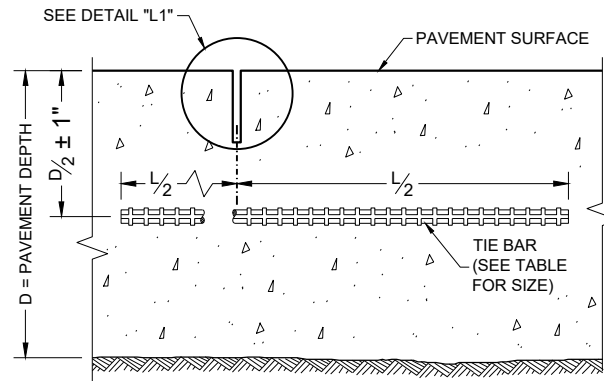


C1

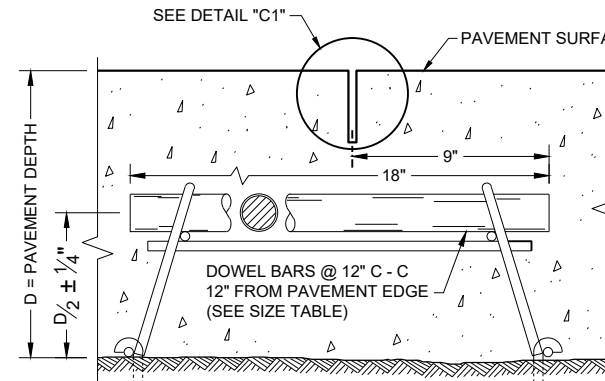
TRANSVERSE JOINTS



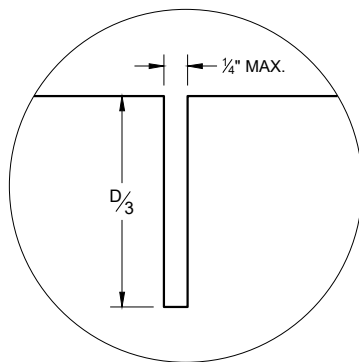
C2



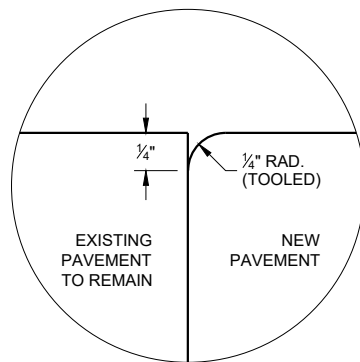
**SECTION C - C
SAWED LONGITUDINAL JOINT**



**SECTION F - F
DOWELED CONTRACTION JOINT**

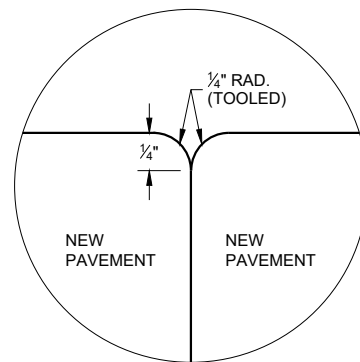


L1

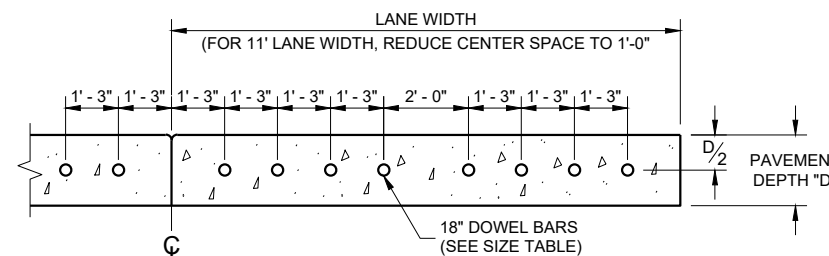


L2

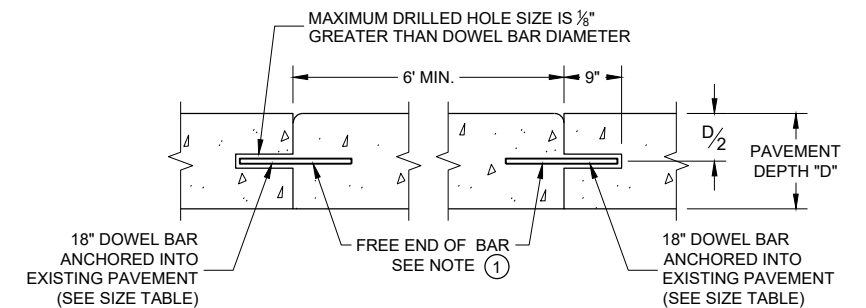
LONGITUDINAL JOINTS



L3



**SECTION E - E
DRILLED DOWEL BAR CONSTRUCTION JOINT**



SECTION D - D

TIE BAR TABLE

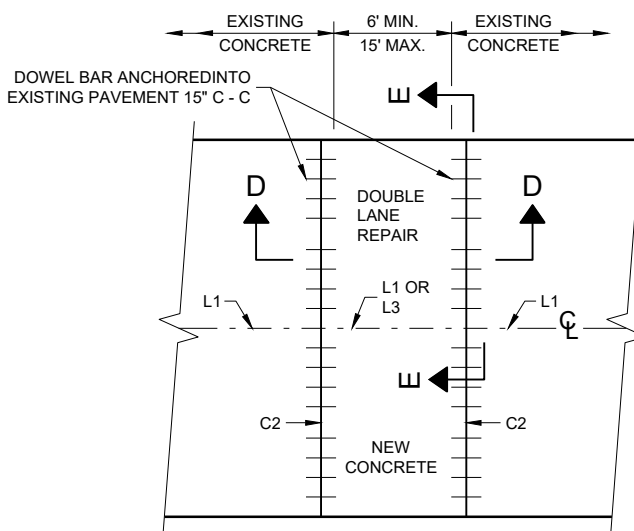
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2" | NO. 4 | 30" | 36" |
| ≥ 10 1/2" | NO. 5 | 36" | 36" |
| | NO. 4 * | 30" | 24" ** |

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

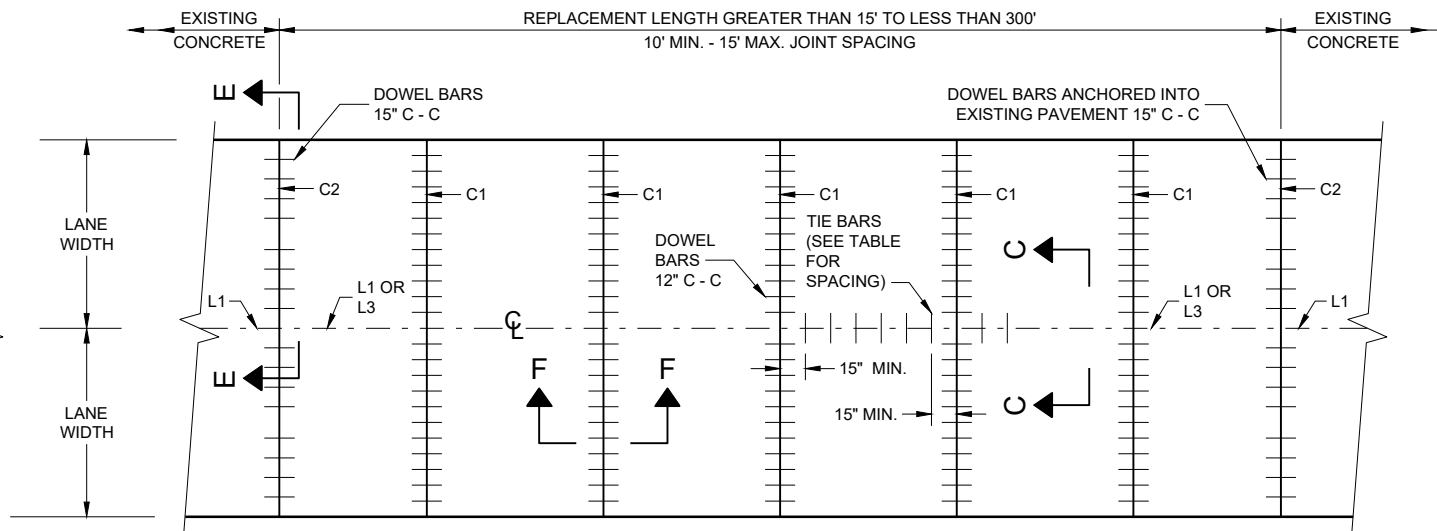
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | DRILLED DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|----------------------------|---------------------------|
| 6", 6 1/2" | NONE | NONE | 12' |
| 7", 7 1/2" | 1" | 1" | 14' |
| 8" & ABOVE | 1 1/4" | 1 1/4" | 15' |



PLAN VIEW

MULTILANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

MULTILANE CONCRETE PAVEMENT REPLACEMENT

**CONCRETE PAVEMENT
REPAIR AND REPLACEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SECTION G - G

TIE BARS ANCHORED INTO EXISTING PAVEMENT

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR

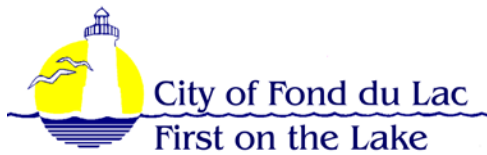


PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

FHWA

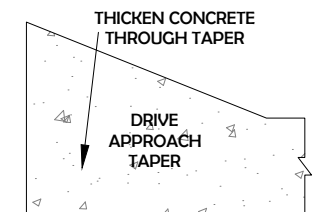
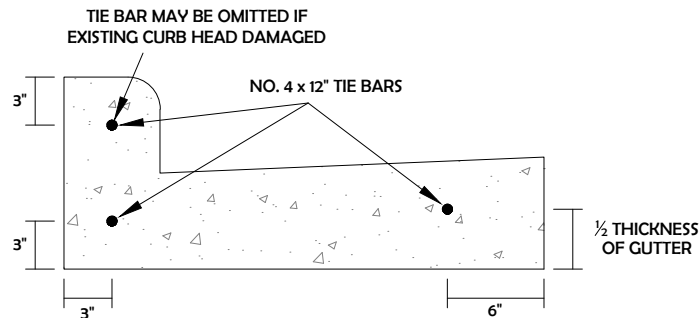
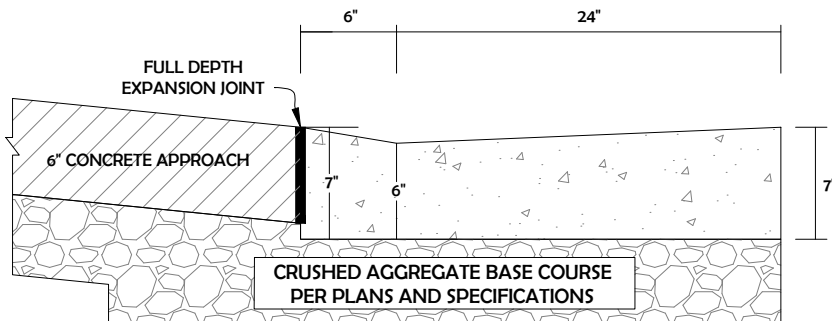
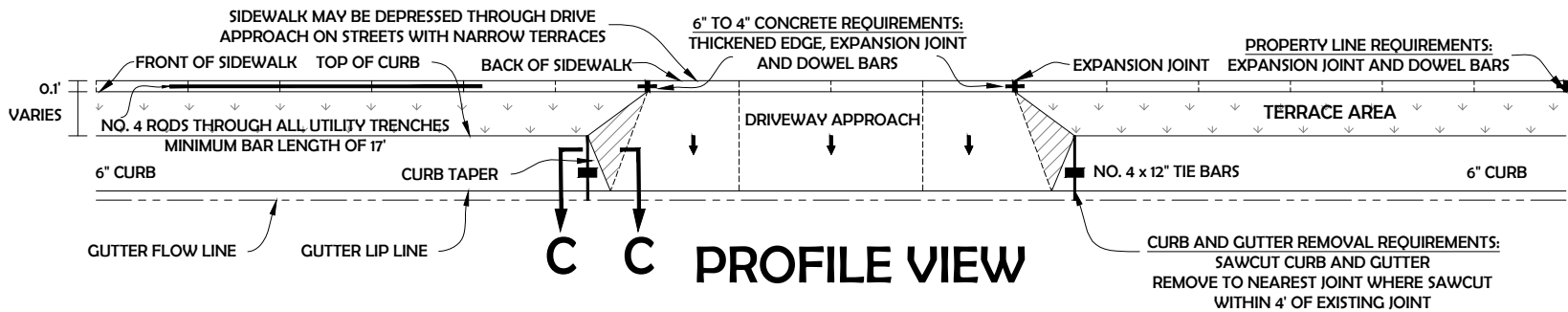
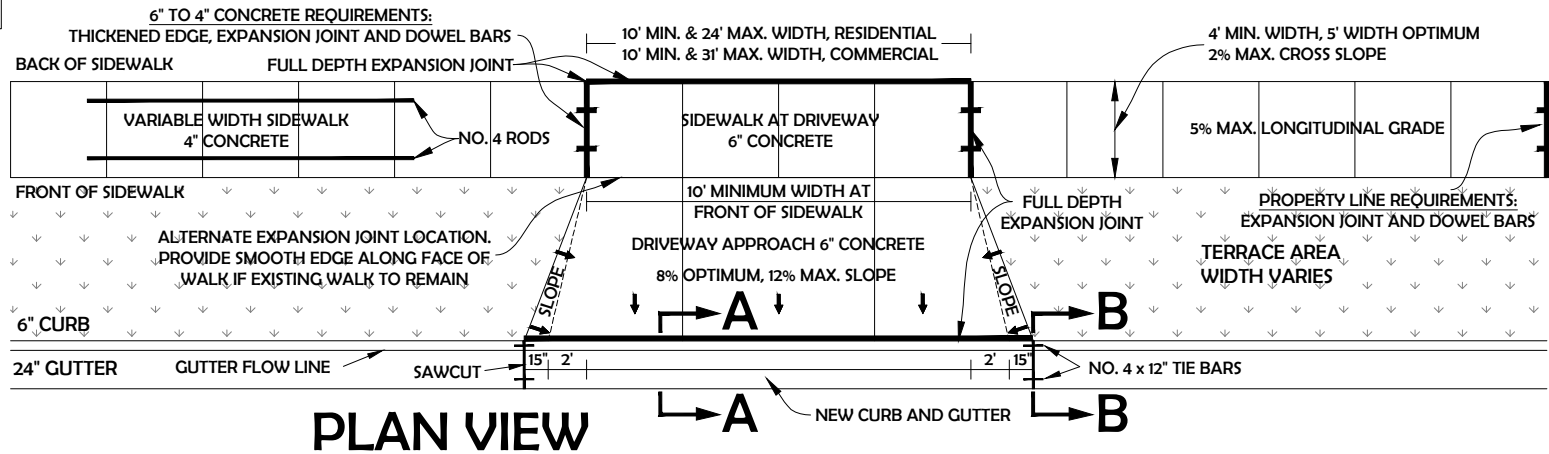
/S/ Peter Kemp P.E.
PAVEMENT SUPERVISOR



SIDEWALK CONSTRUCTION INFORMATION
CITY OF FOND DU LAC
ENGINEERING DIVISION
920-322-3470 | <https://www.fdl.wi.gov/engineering/>

A Sidewalk Permit must be obtained from the City of Fond du Lac prior to any sidewalk work beginning. Contact the Engineering Division for inspection of sidewalk forms prior to pouring concrete at 920-322-3470.

1. **Sidewalk Width** – Widths shall match existing sidewalks on adjacent sidewalk panels. If sidewalk widths vary by ½ foot or more, please call the City Engineering Division before setting forms.
2. **Sub-Base Preparation** – The subgrade shall be formed by excavating or filling to the required elevation to a point 3 inches below the bottom of the 4 inch concrete or 5 inches below the bottom of the 6 inch concrete. The width of the subgrade shall be 6 inches beyond each side of the sidewalk.
3. **Granular Base Course** – A minimum of 3 inches of ¾ inch minus limestone or road gravel base course is required under all 4 inch concrete, and 5 inches of granular base course under all 6 inch concrete. No clear stone.
4. **Forms** – Forms shall be of wood, plastic, or metal and shall be straight and of sufficient strength to resist springing, tipping, or other displacement during the process of depositing and consolidating the concrete.
5. **Expansion Joint** – All expansion joints shall be filled using ½ inch Reflex Rubber Expansion Joint filler. Equivalent products must be approved by City Engineering prior to installation.
6. **Joints** – The edges of the sidewalk along forms, joints, or metal slab divisions shall be rounded with an edge of ¼ inch radius.
7. **Reinforcing Rods & Sidewalk Tie Bars** – No. 4 reinforcing rods shall be installed in all new concrete over utility trenches. Two – 1 foot long, No. 4 sidewalk tie bars, shall be drilled and installed into all adjacent panels or other locations as directed by the City Engineering Division. Where expansion joint material is used the contractor shall use No. 4 smooth bars, greased. Tie bars can be deformed or epoxy-coated.
8. **Finishing, Curing, & Protection** – Concrete shall be finished smooth and lightly broomed. After finishing operations, the concrete surface shall be cured by applying linseed oil or approved curing compound (“impervious coating method”) as specified by the Wisconsin Department of Transportation, in such a manner as to provide a continuous water-impermeable film on the entire concrete surface.
9. **Backfilling** – The disturbed areas along the sides of the walk shall be backfilled with satisfactory topsoil and thoroughly compacted.
10. **Barricading** - Sufficient lighting and barricades shall be provided to protect the public. Barricades shall remain in place until the new concrete is cured and all adjacent holes have been backfilled.
11. **Stamp Required** – The contractor shall stamp his name and the year of construction on each single square or at the end of multiple square pours.
12. **Cores** – Replace entire concrete sidewalk and drive approach panels whenever a core is made for utility locating or other purposes.



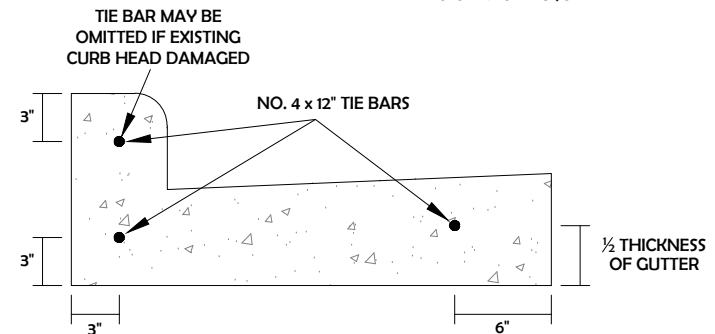
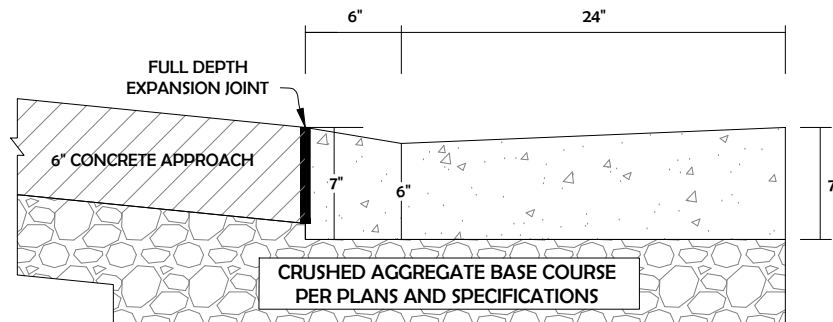
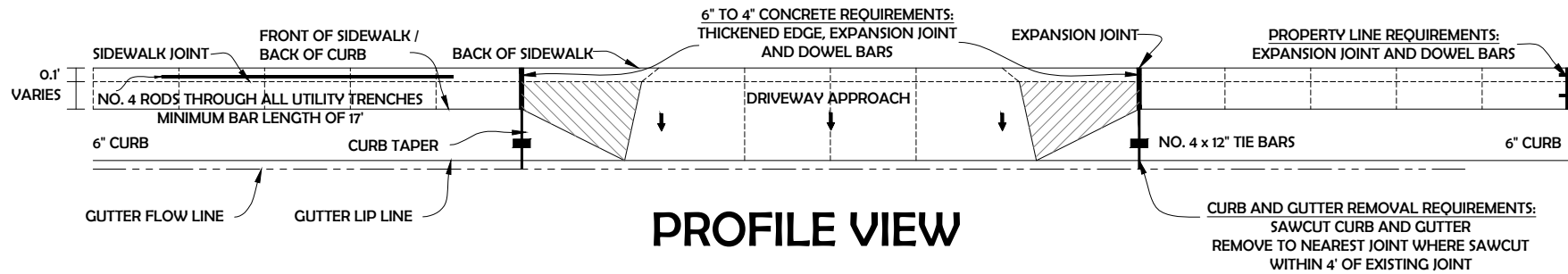
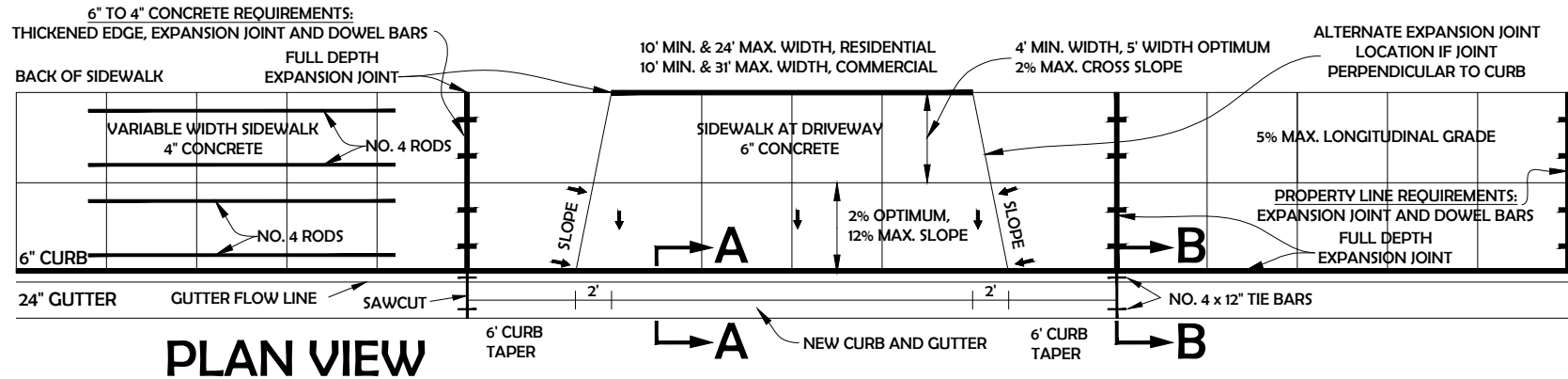
- NOTES:**
- A CURB CUT PERMIT SHALL BE OBTAINED FROM CITY ENGINEERING PRIOR TO THE START OF WORK.
 - EXISTING CURB AND GUTTER TO BE SAWCUT AND REMOVED FOR THE ENTIRE LENGTH OF THE PROPOSED DRIVEWAY AND REPLACED AS SHOWN IN SECTION A-A.
 - A PROFILE SAWCUT OF THE EXISTING CURB HEAD MAY BE PERFORMED WHEN APPROVED BY CITY. SAWCUT AS SHOWN IN SECTION A-A USING APPROVED EQUIPMENT.
 - WHEN SPOT REPLACING SIDEWALK, INSTALL NO. 4 TIE BARS, 12" IN LENGTH, INTO BOTH SIDES OF EXISTING WALK 18" FROM THE FRONT AND BACK OF WALK.
 - NO. 4 DOWEL BARS, 12" IN LENGTH, TO BE INSTALLED AT EXPANSION JOINTS. BARS ONLY REQUIRED WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.
 - DOWEL BARS SHALL BE ANCHORED INTO DRILLED HOLES WITH AN APPROVED EPOXY GROUT.
 - THE FREE END OF DOWEL BARS SHALL RECEIVE A THIN UNIFORM COATING OF BOND BREAKER.
 - INSTALL NO. 4 RODS THROUGH ALL UTILITY TRENCHES. MINIMUM LENGTH OF 17'.
 - ALL TIE BARS, DOWEL BARS, AND RODS SHALL BE EPOXY COATED.

SECTION A -A **TYPICAL DRIVE APPROACH: GRASS TERRACE**

REVISED 06/19/20 BY NW
J:\CITYDWG\Civil 3D Drawings\DTL\City SDDs\Drive Approach Details-Grass Terrace-ROW Permit.pdf



TYPICAL DRIVE APPROACH: CURBSIDE SIDEWALK



NOTES:

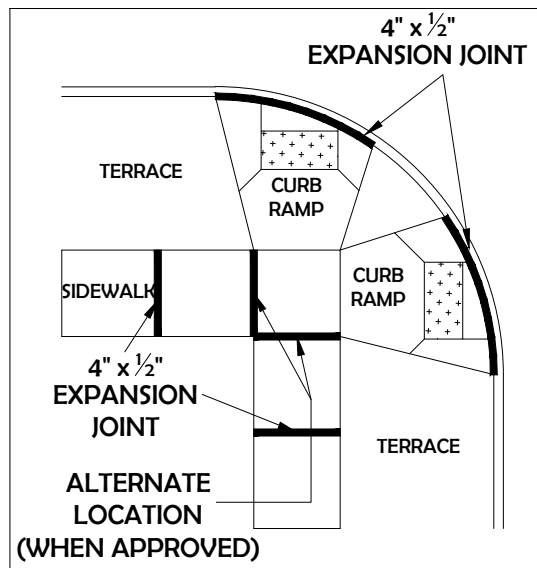
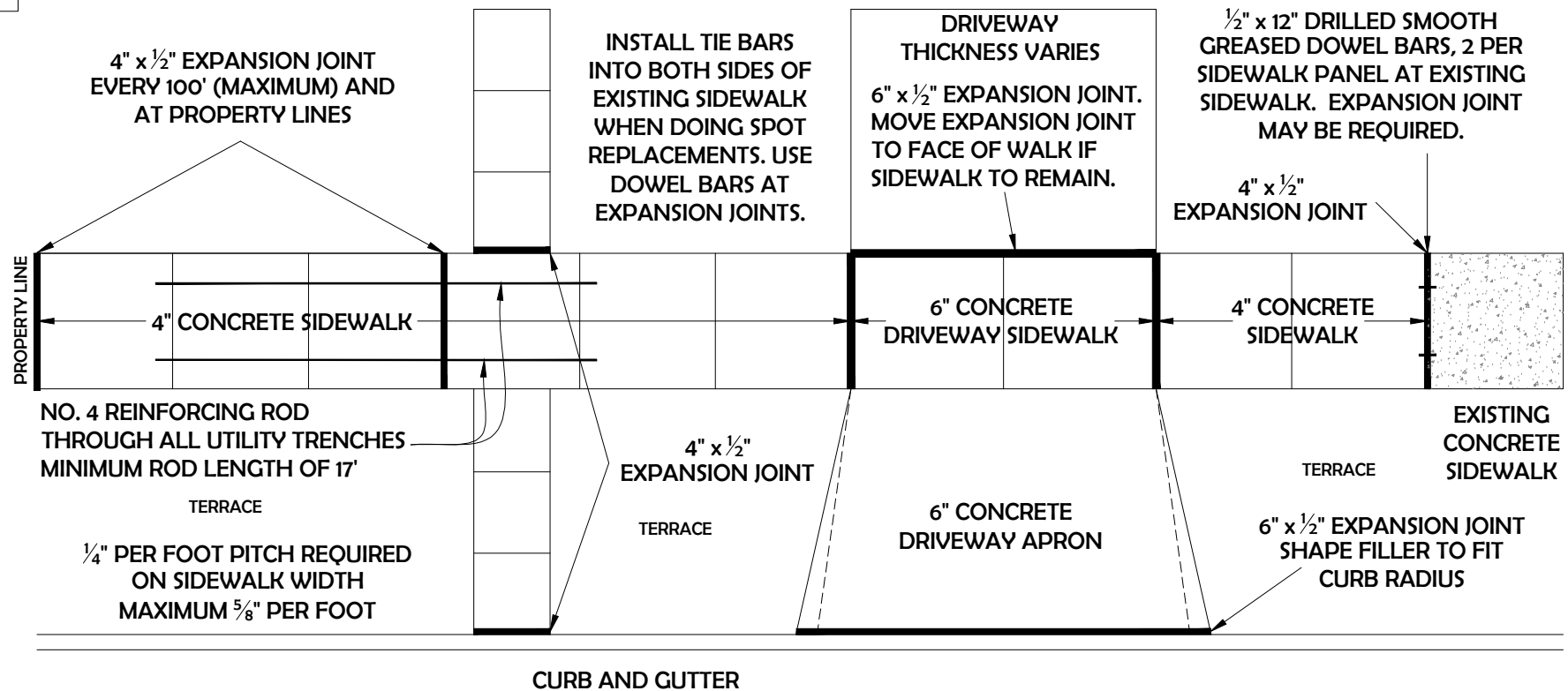
- A CURB CUT PERMIT SHALL BE OBTAINED FROM CITY ENGINEERING PRIOR TO THE START OF WORK.
- EXISTING CURB AND GUTTER TO BE SAWCUT AND REMOVED FOR THE ENTIRE LENGTH OF THE PROPOSED DRIVEWAY AND REPLACED AS SHOWN IN SECTION A-A.
- A PROFILE SAWCUT OF THE EXISTING CURB HEAD MAY BE PERFORMED WHEN APPROVED BY CITY. SAWCUT AS SHOWN IN SECTION A-A USING APPROVED EQUIPMENT.
- WHEN SPOT REPLACING SIDEWALK, INSTALL NO. 4 TIE BARS, 12" IN LENGTH, INTO BOTH SIDES OF EACH EXISTING WALK PANEL 18" FROM THE FRONT AND BACK OF WALK.
- NO. 4 DOWEL BARS, 12" IN LENGTH, TO BE INSTALLED AT EXPANSION JOINTS. BARS ONLY REQUIRED WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.

NOTES:

- DOWEL BARS SHALL BE ANCHORED INTO DRILLED HOLES WITH AN APPROVED EPOXY GROUT.
- THE FREE END OF DOWEL BARS SHALL RECEIVE A THIN UNIFORM COATING OF BOND BREAKER.
- INSTALL NO. 4 RODS THROUGH ALL UTILITY TRENCHES. MINIMUM LENGTH OF 17'.
- ALL TIE BARS, DOWEL BARS, AND RODS SHALL BE EPOXY COATED.

REVISED 06/19/20 BY NW
J:\CITY\DWG\Civil 3D Drawings\DTL\City SDD\Drive Approach Details-Curbside Sidewalk-ROW Permit.pdf





TYPICAL SIDEWALK (MINIMUM WIDTH 4.5')

INSTALL "HUDSON" BOX (PROVIDED BY CITY) AT WATER & GAS SERVICE BOXES LOCATED IN CONCRETE AREAS

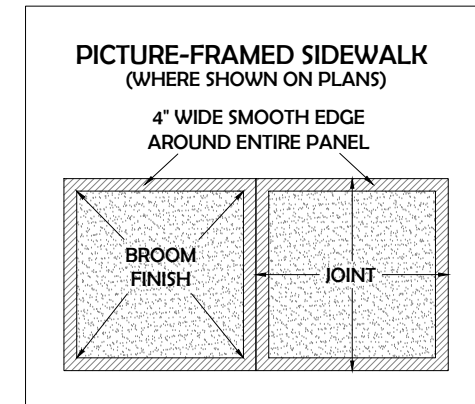
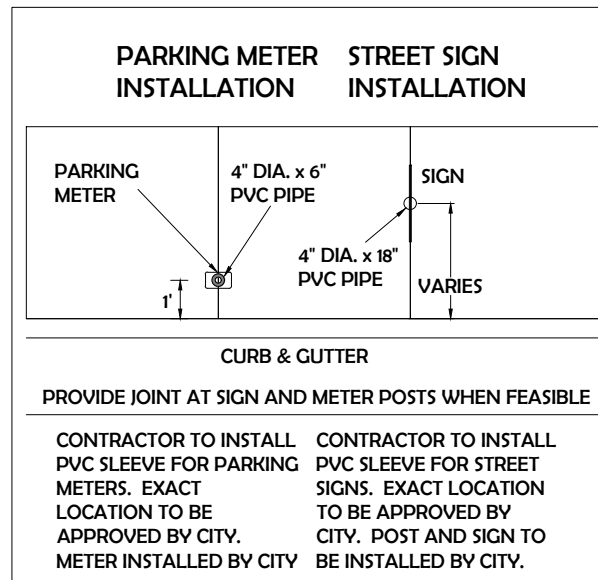
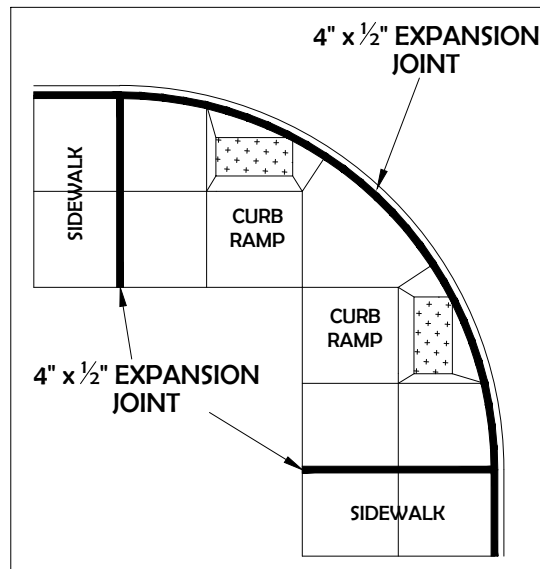
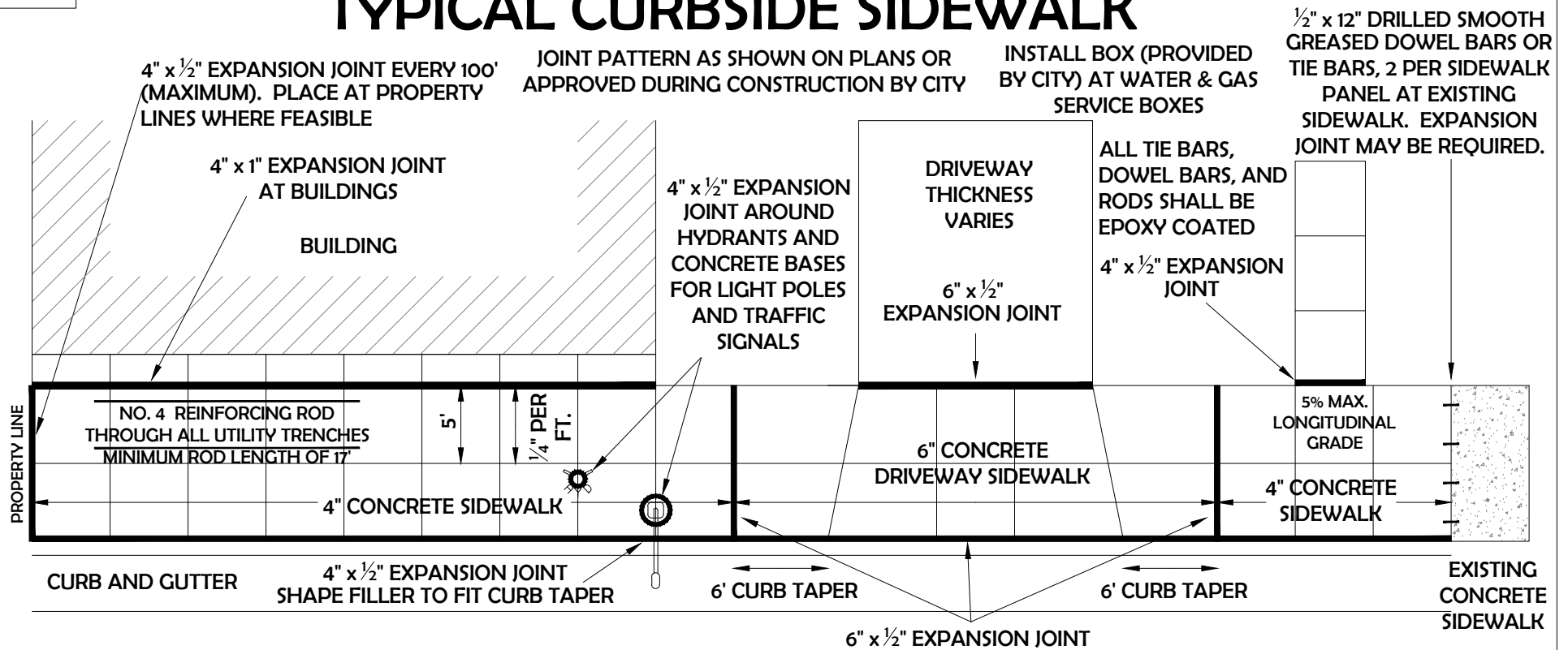
INSTALL DETECTABLE WARNING FIELDS AT CURB RAMPS

EXPANSION JOINT & FILLER SHALL MATCH SIDEWALK THICKNESS

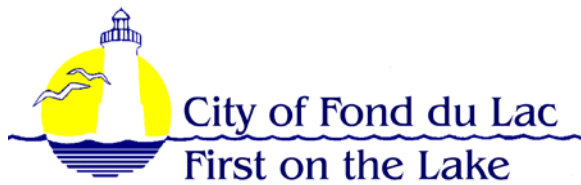
ALL TIE BARS, DOWEL BARS, AND RODS SHALL BE EPOXY COATED



TYPICAL CURBSIDE SIDEWALK



DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND TRAFFIC DIVISION
CITY OF FOND DU LAC, WISCONSIN



SPECIFICATIONS FOR UTILITY CONNECTIONS
CITY OF FOND DU LAC
ENGINEERING DIVISION
920-322-3470 | <https://www.fdl.wi.gov/engineering/>

Sewer Laterals

Install all sewers in the right-of-way and city easements in accordance with the *Detailed Specifications for Sewer Construction*. Any exceptions to the items below shall be approved by the City Engineering Division. Contact City Engineering Division at (920) 322-3470 at least two working days prior to installation. The location of all wyes, taps, and fittings shall be recorded using GPS shots.

Water Services

Contact the City Water Utility at 920-322-3680 for all requirements for water service installation.

Sanitary Lateral Materials

All sanitary sewer laterals shall be SDR 35 PVC sewer pipe conforming to **ASTM D3034**. Sanitary sewer laterals located within 200 feet of a community water system well or within 50 feet of private water system well shall be DR18 pressure-rated PVC pipe conforming to **AWWA C900**.

Storm Lateral Materials

All storm laterals shall meet the requirements of the *Detailed Specifications for Sewer Construction* and the approved plans.

Connecting to Existing Storm Structures

1. Use existing holes when feasible. Otherwise, core the proper size hole into the existing structure.
2. Connect pipes and construct masonry around the pipes.

Laying Lateral Pipes

1. The minimum size of sanitary laterals shall be 6 inches in diameter.
2. Laterals shall be laid perpendicular to the main or structure without horizontal deflections in the right-of-way or sewer easement.
3. Sanitary sewer laterals will be laid at a minimum of ¼ inch per foot.
4. No sanitary sewer laterals shall discharge directly into a manhole.
5. Sanitary sewers 12 inches or less shall use factory wyes. Lateral connections for 15 inch diameter and larger sanitary sewers may be made using factory wyes or an Inserta Tee by Advanced Drainage Systems, Inc. Wyes shall point downstream and enter the sanitary main at an angle of not less than 5 degrees and no more than 45 degrees off horizontal.
6. For all existing sanitary sewer mains which are 12 inches or less in diameter, the Contractor shall cut out a section of the existing sanitary main and install a factory wye or tee with a minimum 2 foot piece of PVC pipe on each side of the factory wye and use a shielded coupling (Strong Back RC 1000 Series Couplings by Fernco or MAXADAPTOR couplings by Gripper Gasket LLC) on each end to attach to the existing sanitary main. In existing sanitary sewer mains where there is an extremely high flow, the City Engineer may approve an alternate method for lateral connection.
7. Storm sewer laterals shall use factory wyes, factory tees, or a pipe to pipe connector. Laterals installed perpendicular to the spring line of the main may use Inserta Tee or Kor-N-Tee pipe by Trelleborg Pipe Seals Milford, Inc. pipe to pipe connectors. Laterals installed vertically or at a 45 degree angle may use Inserta Tee pipe to pipe connectors.
8. Unconnected sanitary and storm laterals shall be plugged with a waterproof cap or plug.
9. All cleanouts shall be installed on private property.

Bedding & Cover

Use ¾ inch crushed stone chips. Excavate the trench to at least 4 inches below the elevation established for the bottom of the pipe and a minimum of 3 inches below the bell. Compact the material before laying the pipe on the backfilled granular material. After laying the pipe, bedding material shall be placed around the sides of the pipe up to a level 12 inches above the top of the pipe.

Backfilling

Trench shall be backfilled with slurry to subgrade elevation.